FINAL REPORT

DEVELOPMENT OF THE VEGETABLE INDUSTRY IN NORTH EAST SASKATCHEWAN

19970349

August 2001

Prepared by:District #31 ADD Board

AGRI-FOOD INNOVATION FUND

Canada

Saskatchewan

District 31 ADD Board

Agri-Food Innovation Fund Project

"Development of the Vegetable Industry in Northeast Saskatchewan"

Project Number 19970349

Final Report – July 26, 2001

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Final Report

Project Number: 19970349

Project Title: Development of the Vegetable Industry in Northeast Saskatchewan.

Summary:
The main objective of this project was to evaluate the potential for commercial vegetable production in the northeast region of Saskatchewan. Due to limited funding we had to select one crop for the project. Cabbage was selected as the crop for evaluation, due to potential shown for this crop, in The Agri-Food Innovation Fund Vegetable Variety trials located at Nipawin and potential markets for this crop were identified in the processing industry. The project was set up to demonstrate the production potential for cabbage under irrigation and dry land production. Cost of production data was also collected from the growers and a cost of production summary was prepared to show the economic potential for the crop. Dry land yields in 1998 were very disappointing due to low rainfall and resulted in a negative net income for that year. Dry land yield improved in 1999, but producers did not continue with the project because labour investment was too high for the uncertain yields that can be achieved under dry land conditions. Production under irrigation showed excellent potential in all three years of the project and irrigation producers plan on continuing with production and have now constructed long term storage facilities.

Technical Report:

- Background and Objectives:
  - Funding for the project was approved for a three year project 1998, 1999, and 2000. The project was established to demonstrate the potential for commercial production of vegetables in northeast Saskatchewan, under dry land and irrigation production.
  - The objective for the project was to establish by the year 2005, the production of 250 acres of cabbage in the northeast region of Saskatchewan, with an estimated market value of $1.25 million dollars. With the development of the vegetable industry, we will also work toward establishment of production and markets for other cool season vegetable crops such as carrots, onions, broccoli, cauliflower, brusell sprouts, and rutabaga.
  - Cost of production data was collected from growers so budgets could be prepared to show the economic potential for commercial cabbage production in our region.

- Project Activities and Achievements
  - In 1998 we had a total of five farmers participating in the project, with two producing under dry land conditions and three under irrigation. We had a total of eight acres of production in the trials. There was only about four inches of rainfall received during the growing season in 1998 and dry land yields were only about 10 to 12 tons per acre which resulted in net return of - $1202.39 per acre. Irrigation yields were good with a range of 25 to 30 ton per acre. Net returns under irrigation were $962.65 per acre. The Lennox variety of cabbage was grown in the trial, because this was the variety preferred by Delsa Foods for their processing needs. The majority of production was marketed through Delsa Foods. Product that was too small for the processing industry was marketed into the table market, either through direct sales or through wholesale companies. All the sites were planted using transplants started in the greenhouse. A summer field day was held in August to demonstrate production potential in the trials, with 43 people in attendance.

A winter production seminar was also held in March, 1999 with approximately 50 people in attendance. Data from the Cost of Production summary from the project were presented at this seminar. A newspaper article on the project also appeared in the Farm and Food Report, Log Number: 98-31-151, for the week of August 3, 1998. Another newspaper article on the project was in the March 21, 1999 edition of the Melfort Sunday Advance. A number of grower meetings were held during the year to discuss potential markets for product and future storage facilities.

- In 1999 we had four farms participating in the project,
with two sites under dry land production and two sites irrigated. The main trials were once again seeded to the Lennox variety. We also received TAD funding to evaluate the production potential and market suitability of the Cecile variety of cabbage, since it is a much earlier maturing variety and it also yielded higher than Lennox in the AFIF Vegetable Variety Trials located at Nipawin. Yields of the Cecile variety were good in these trials, but Delsa Foods found this variety was not suitable for their processing market, since it turned dark following processing. Yields in the main production trials were good (20 ton/acre) under dry land production, due to the more normal rainfall in 1999, with approximately 10 to 12 inches of rainfall during the growing season. Yields under irrigation were also good with a range of approximately 20 to 30 tons per acre. Yields on one irrigation site was reduced due to hail damage in early July and we also had a problem with double and triple heads on about 10 to 15 % of the plants in the field, which resulted in small heads that had no market potential. The net return under dry land production was $442.59 per acre and net returns under irrigation was $1292.14 per acre. We held a summer field day in August with approximately 60 people in attendance. We ran a production and marketing seminar in March, 2000, with approximately 50 people in attendance. The cost of production data on the trials was presented at the winter production seminar in Nipawin and at the Saskatchewan Vegetable Growers Seminar in Outlook. Approximately 200 copies of the Cost of Production Summary have been circulated to producers throughout the province and we also had one request for the Cost of Production Summary from Ontario.
- In 2000 we only had three co-operators in the project.
The dry land producers decided not to continue with the project because yields were too uncertain with the high requirements for labour and the high input costs.
The three farmers producing under irrigation had a total of 6 acres of production. All producers grew the Lennox variety because most of the product was being produced for sale to Delsa Foods and this is still the variety they prefer for processing. One producer had his total crop hailed out in July. Yields on the other two sites were excellent in 2000, with a range of 30 to 40 ton per acre. Prices paid by the processing company were two cents per pound higher in 2000 compared to the previous two years (12 cents per pound in 2000 and 10 cents per pound in 1998 and 1999). Gross returns in 2000 averaged $8400 per acre, with an average net return over cash costs of $4500 per acre. All producers grew their own transplants, either in their own greenhouse or under grow cloth in a nursery bed in the field. Net returns per acre were also improved due to reduced labour costs resulting from improvements in harvesting techniques. A summer field day was held in 2000, with 55 people attending. An extension information seminar on vegetable production and marketing was held in March, 2001, with approximately 20 people in attendance. Cost of production data and a summary of the project were presented at the Provincial AFIF Conference held in Regina and at the Saskatchewan Vegetable Growers Association Annual Meeting held in March 2001 at Outlook. Over 400 copies of the Cost of Production Brochure have now been distributed throughout the province. A follow-up summer field day for vegetable producers will be held in the Nipawin District on August 9, 2001.

- **Results and Conclusions**
  - The project demonstrated that cabbage could be commercially grown in our region. Net returns over cash costs have averaged $2250 per acre, over the three years of the project. Yields were as good or better than other areas of the province. One other advantage that we have in our region compared to other parts of the province is that we have minimal damage due to root maggots. There was major damage due to root maggots in southern regions of the province in 2000 while we had no damage in our region from this insect. Expansion in acreage of the crop in future years will be dependant on available markets. The majority of product was harvested and direct marketed to Delsa Foods for processing, without being placed into storage. Construction of storage facilities will be required to allow marketing to continue through the winter months. The average net return over cash costs of $2250 per acre, demonstrated that cabbage is a viable crop to grow commercially in our region. Detailed cost of production data is

summarized in the "Saskatchewan Cabbage Cost of Production Summary for 1998 and 1999 , which is at the end of this report.

- Indication for Further Development
  - Producers that participated in the project plan to continue with production in future years. These producers and some new producers have expanded their production to other vegetable crops such as carrots, onions, broccoli, cauliflower, peas, beans, tomatoes, peppers, cucumbers, and table potatoes. We have seen new producers showing interest in the project by attendance at the summer field days and winter seminars. We have also seen requests for information on the project and vegetable budgets through the extension office here at Nipawin. This should result in additional production of vegetable crops in our region, as well as other regions in the province. Two of the co-operators in the project have now constructed storage facilities for vegetable crops, which demonstrates a long term commitment to the industry. One of the producers has also opened a retail store here in Nipawin, which will expand markets for the vegetable crops being produced.
- **Project Success and Relationship With Objectives**
  - The project was a success, since we have seen a long term commitment to vegetable production in our region. We probably will not see an expansion to where we see 250 acres of cabbage by the year 2005, unless some new markets can be established, such as additional processing facilities or marketing products to other provinces or into the United States. The construction of storage facilities by producers will allow increases in acreage, because product can then be marketed into the winter months. Producers have demonstrated that they can maintain quality of cabbage through until March, with the current storage facilities they have. We have also seen a new greenhouse vegetable production operation established in our region.

- **Information Sharing**
  - We have shared information on the project through the summer field days held in 1998, 1999, 2000 and 2001.Winter seminars held in our region have been well attended, with producers from many regions of the province. Data on the project has been presented at the provincial AFIF Conferences held in Saskatoon and Regina. Cost of production data from the project was presented at the Saskatchewan Vegetable Growers Association Annual meetings in 1999, 2000 and 2001. Newspaper articles presented information on the success of the project and the potential for vegetable production in our region. The Cost of Production Brochure produced through the project has been circulated to over 400 individual people, throughout the province.

- **Information on Cost of Production**
  - A Cost of Production Brochure was prepared from data collected in the project during 1998 and 1999. A copy of this brochure is attached at the end of this report.

Personnel

During the term of the project, we hired a summer student to work on the project each year. The students were employed from mid May to the end of August each year. Individual students who worked on the project included:

1998 – Kari McCaffery
1999 – Kari McCaffery and Amanda Nielsen
2000 – Jami McBain and Ryan Boughen.

Most of the project work done during 1999 was done by Kari MaCaffery and in 2000 by Jami McBain. Amanda Nielsen and Ryan Boughen assisted when more than one worker was required or the main project worker was not available.

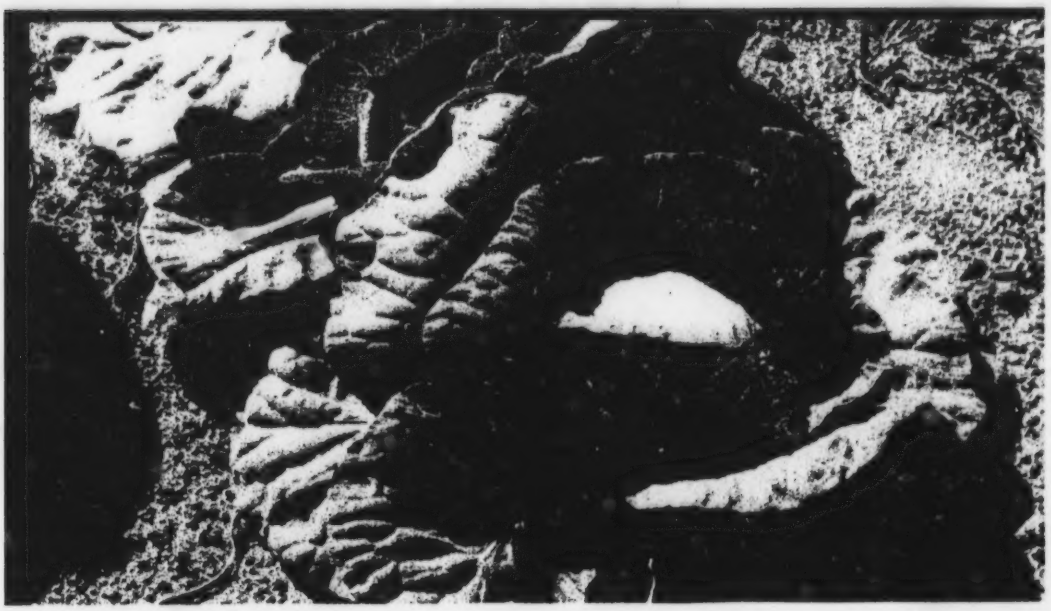
Equipment

One of co-operators in the project purchased a mechanical transplanter and this was rented by the project to allow the cabbage plants to be transplanted at each of sites. Through the project we also purchased shipping containers such as bulk bins to ship product to the processor at Delisle and boxes and bags for sale of product in the wholesale market for table use and in restaurants.

SASKATCHEWAN CABBAGE COST OF PRODUCTION SUMMARY for 1998 and 1999

Agri-Food Innovation Fund Vegetable Production Trials

In
North East Saskatchewan



SASKATCHEWAN CABBAGE COST OF PRODUCTION

The information contained in this publication is from two years of production in the Nipawin area for 1998 and 1999. Therefore, this information should only be used as a guide in suggesting what may be the cost of production for cabbage. The data was collected from growers participating in the Agri-Food Innovation Fund Project, Vegetable Production in NorthEast Saskatchewan.

This publication does not contain information regarding production trials that were conducted in 19997, 1998 and 1999 by the University of Saskatchewan, College of Agriculture, Department of Plant Science under the Agri-Food Innovation Fund Project, Vegetable Variety Trials. Information on this project can be obtained through Saskatchewan Agriculture & Food Rural Service Centre in Nipawin or from the College of Agriculture, Department of Plant Sciences in Saskatoon.

The initial results from the Nipawin trials suggest that the area have great production potential. The major concerns are harvesting, storage and marketing, when a larger acreage is grown. These issues are being addressed in the hopes of moving the industry forward in the Nipawin area.

The province presently supplies about 40% of its in-season requirements for cabbage. Acreage devoted to fresh market cabbage and particularly cabbage for storage has declined over the last several years as growers opt for less labour-intensive and more profitable crops. This decline comes at a time when demand for fresh cabbage is stable and opportunities exist for processing of the crop. Processors in Saskatoon and Delisle are relying on imports for the vast majority of their needs. This indicates a significant market potential for storage type cabbage production.

We would like to thank the Agri-Food Innovation Fund for their continued support of the vegetable industry development projects in the province. We would also like to acknowledge the funding received from the Agriculture Institute of Management in Saskatchewan under the Canadian Farm Business Management Program, Which allowed us to collect cost of production data and print cost of production brochures.

Notes On Production Costs:

This publication only contains cash operating costs. No consideration was given to land, machinery and possible storage costs on the 1998 data. We have included depreciation on irrigation , machinery and storage containers in the 1999 data as an overhead cost. The main purpose of these trials was to determine production potential and to gather cash operating information for the Nipawin area.

1. Seed
   All seed for the project was purchased through Seedway, Burlington, Ontario. We purchased 15,000 seeds per acre, with the objective of having 12,000 to 14,000 plants per acre.
2. Transplants
   Most of the growers had their seed grown out at Hort-West Consulting Greenhouse, Saskatoon. One grower planted his seed in a bed in his yard and covered it with grow cloth to provide protection from flea beetles and frost. He grew out the transplants in this bed and then lifted the plants and transplanted in the field.

3. Fertilizer
   Fertilizer was applied according to soil test recommendations at each location. Average fertilizer requirements were as follows:
   95 pounds per acre of nitrogen
   64 pounds per acre of phosphate
   39 pounds per acre of potash
   15 pounds per acre of sulfur
   6 pounds per acre of copper.
   Other micronutrients were adequate in the fields.
4. Herbicides
   All producers applied Treflan at 1 to 1.5 Liters per acre prior to planting. They also used between row cultivation and hoeing between plants up until row closure.

5. Insecticides
   Most growers applied 4 applications of Decis and 2 to 3 applications of Sevin to control flea beetles and imported cabbageworm.
6. Custom Work and Machinery Rental
   The only machinery rental paid was for the transplanter.
7. Storage Operation
   Estimated cost for operation of heating and cooling equipment and labour to handle product.
8. Fuel
   Not all growers provided costs on fuel because they used tractors for other enterprises in their farming operation and did not break out the cost of fuel for cabbage production.
9. Repairs to Buildings and Equipment
   None of the growers provided data on these costs.
10. Labour
    Growers allocated labour costs for their own family labour and hired labour. Family labour was valued at $8 to $10 per hour and hired labour cost $7 per hour. Estimated labour requirements were an average of 115 hours of family labour per acre and 59 hours of hired labour per acre.
11. Marketing Costs
    Material cost includes large boxes for shipping to Delsa Foods for processing and 50 pound boxes and bags for shipment to wholesalers, grocery stores and restaurants in the region. Transportation cost includes shipping by transport to Delsa Foods and individual grower's cost for hauling to the wholesaler in Prince Albert and to individual grocery stores and restaurants in the region.
12. Interest
    Calculated on the basis of interest charged at 8% of total cash operating expenses over 8 months.
13. Overhead Cost for 1999
    This was based on depreciation of one grower's investment in irrigation equipment, machinery and shipping containers. The irrigation equipment was depreciated over 3 years and machinery over 10 years.

Storage costs were not included for all producers because some producers marketed product as it was harvested and did not store any product. Storage costs for other producers were generally low because they only used short-term temporary facilities

The costs gathered for this publication only come from a very small number of producers and therefore these costs should only be looked at as guidelines and not recommendations.

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